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Author(s)	URAIWONG, Piriya, WATANABE, Tsunemi
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STAKEHOLDER ANALYSIS OF WATER RESOURCES PROJECTS IN THAILAND

Piriya URAIWONG* and Tsunemi WATANABE**
Graduate Student, Graduate School of Engineering, Kochi University of Technology*
Professor, School of Management, Kochi University of Technology**

***ABSTRACT*:** Evaluations of a number of previous water resources projects have identified poor identification of stakeholder needs and inadequate assessment of social impact as main factors of project failure. To address these problems, there has been increased use of stakeholder analysis, a methodology for the identification and prioritization stakeholders so as to facilitate project management throughout the project life cycle. This increased use of stakeholder analysis suggests that project stakeholder management has become one of the major concerns in water resources project management.

Two objectives of this study are to identify involved stakeholders in Thai water resources projects by conducting stakeholder analysis using stakeholder management theory and to analyze the example of stakeholder management related to ethical issue. In this study, "stakeholders" refers to all individuals and groups with an interest in a given project. Stakeholder groups were identified in each phase of the project lifecycle (planning and development, procurement and construction and operation and maintenance). Data for the study was gathered from the literature and discussions with individuals involved in water resources development projects. Results of the study enabled the identification of key stakeholder groups in a project life cycle. These results were input into a stakeholder mapping which visually displayed the relationship between stakeholder and a project. Taking an example case of the Ashio copper mine in Japan, the negative exercise of stakeholder management can be avoided by a more thoughtful understanding of ways in which stakeholders are to cooperate with other, leave each other free, and deal fairly with each other. Co-creators approach was proposed for public project development in order to establish common ground and share stakeholder feeling. An important target for future studies is a stakeholder analysis method for identification of the risk impacting each stakeholder.

KEYWORDS: stakeholder, water resources management in Thailand, Ashio copper mine

1. INTRODUCTION

Recently, water resources project planning has become more complicated due to the highlighted attention being paid to public involvement, to the environment and to social issues. Evaluations of a number of previous water resources projects have identified poor identification of stakeholder needs and inadequate assessment of social impact as main factors of project failure (Grigg, 1996). To address these problems, there has been increased use of stakeholder analysis, a methodology for the identification and prioritization stakeholders so as to facilitate project management throughout the project life cycle. This increased use of stakeholder analysis suggests that project stakeholder management has become one of the major concerns in environmental resources management (Hermans, 2001; Prell et.al. 2007; Reed, 2008).

1.1 Objectives

There are two objectives in this study. The first objective is to conduct Thai water resources projects stakeholder analysis by using stakeholder management theory. In this study, "stakeholders" refers to all individuals and groups with an interest in a given project. Results of the study enabled the identification of key stakeholder groups in a project life cycle. These results were input into a stakeholder mapping in which visually displayed the relationship between stakeholders and a project. Another objective is to illustrate an example of stakeholder management related to ethical issue case and an approach of co-creators for public infrastructure project. In this section, an example of the Ashio copper mine in Japan was analyzed regarding ethical issue in stakeholder management.

To achieve this, the paper is divided into four sections. The first section discusses on Thailand water resources project development and management problems. The next section provides the conceptual underpinning for the paper by presenting a review of stakeholder theory and stakeholder analysis. In the third section, stakeholder analysis is applied to a water resources project in Thailand. Finally, there is a discussion of stakeholder management related to ethics issue and co-creators approach.

2. PERSPECTIVE ON THAILAND WATERRESOURCES MANAGEMENT

2.1 Overviews

Water resource in Thailand is mainly influenced by precipitation from the regional monsoon during May to October. The average annual rainfall countrywide is 1,700 mm with the estimation of total volume at 800,000 million m3 (DWR, 2010).

After the rapid economic development in the past thirty years, the water resources development program has been implemented to support rapid rural development, industrialization, tourism development, domestic consumption, agriculture and other purpose drastically. However, in the recent years, Thailand has faced serious not only water "physical" problem such as problems water shortages, drought and floods, water pollution, but also water resources management problems. Therefore, water resources development and management has become a complex challenge for water management professional in Thailand (Sethaputra et.al, 2001).

Water resources development scheme in Thailand has shifted from an initial government dominated and ineffective management process to a more stakeholder involvement (GWP, 2008). In an attempt to increase participation and decentralization of water management, the Government of Thailand has taken initiative in adopting integrated water resources management (IWRM) principle for implementation at a river basin level (DWR, 2010). Thailand has been divided into 25 major river basins, further divided into a total of 254 sub-basins. Two main government agency involving water resources project management in Thailand are the Royal Irrigation Department, Ministry of Agriculture and Cooperatives and the Department of Water Resources (DWR), Ministry of Natural Resources and Environment. In this study, a small-scale water resources project implemented by the DWR will be explored.

2.2 Management problems

Due to growing demand of water use in Thailand for domestic consumption, agriculture and industrial development in the past fifty years, Thailand has put more emphasis on water resources development resulting in many small, medium and large-scale construction projects to supply national water

demand. However, there are a number of serious problems in management issue that need to be solved. These problems include the lack of a formal system of water allocation and water right, lack of clear policies, less effective implementation of budget and lack of coordination among organizations. In addition, involvement of stakeholders in water resources management is not well developed (Lien, 2003; Sethaputra et.al, 2001; WWAP, 2007). Although there is current emphasis in participatory water resources management, this does not represent stakeholder analysis which focuses on identification of stakeholders so as to understand their behavior, intentions, interrelations and interests (Kanjina, 2007; Taesombat et. al., 2002). This paper will therefore present a small scale water resources project stakeholder analysis in Thailand based on stakeholder theory.

3. STAKEHOLDER ANLYSIS THEORETICAL BACKGROUND

3.1 Stakeholder definition

Several definitions of stakeholder in a number of fields have been made. The classic definition of stakeholder in business aspect was defined by Freeman (1984) as "any group or individual who is affected by or can affect the achievement of an organization's objectives." In the project management body of knowledge (PMBOK) Guide (1996), the term project stakeholder is defined as "an individual and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion." Global Water Partnership (GWP) defined a stakeholder as who is involved in making decisions on water and land resources management in a basin and who will be affected by those decisions (2009). A summary of fifty-five stakeholder definitions covering seventy-five texts arranged in chronological order can be found in Friedman and Miles (2006).

Stakeholders can be of any form, size and capacity. They can be individuals, organizations, or unorganized groups. The World Bank categorizes stakeholders into the following categories; international actors, national or political actors, public sector agencies, interest groups, commercial/private for profit/ non-profit organizations (NGOs, foundations), civil society members, and users/ consumers. In water resources project, non-human can be considered as stakeholders if a project affects the quality of their existence (Maheshwari and Pillai, 2008).

3.2 Stakeholder management theory

Stakeholder management theory was originally established in the field of business ethics. Unlike theories of the firm, the stakeholder theory intention is to explain and to guide the structure and operation of the established corporation. Over last thirty years, stakeholder management theory has been developed to answer problem of value and trade, problem of ethics of capitalism and problem of managerial mindset (Freeman et.al, 2010). Stakeholder theory was originally detailed by Freeman (1984) in the book " Strategic Management: A Stakeholder Approach" which attempted to address the principle of who or what really counts (Mitchell et. al., 1997). Simple stakeholder management theory is categorized as descriptive, prescriptive, and instrumental theories (Donaldson and Preston, 1995). Three perspectives of stakeholder management theory are summarized in table 3.1. However, Donaldson and Preston (1995) mentioned that the tree aspects of the theory are regarded as nested within each other.

Table 3.1 Perspective on stakeholder theory (adopted from Bailur; 2007)

Stakeholder Theory	Approach	Theoretical Underpinnings
Descriptive	Understanding the relationship between an organization and its stakeholder	Organizational behavior
Normative	Organizations should take all stakeholders into consideration, as a moral responsibility	Corporate social responsibility, Kantian theory of common good
Instrumental	Organizations should take key stakeholders into consideration as this leads to success and competitive advantage	Utilitarianism; business and management

3.3 Stakeholder analysis

An increasing recognition of the stakeholder analysis in natural resources management partly reflects the growing efforts to support the prevailing of stakeholder values influencing environmental decision making process (Daiwan and Minquan, 2009; Herman, 2001; Prell et.al., 2007). Two potential benefits of stakeholder analysis are as follows. First, in research term, the project itself will be better understood in terms of project sustainability, impact and best practice. Second, stakeholder analysis could contribute a best practical practice that could offer long-term project sustainability (Bailur, 2007).

4. METHODOLOGY

Data for small-scale water resources project stakeholder analysis is mainly gathered through discussion with key persons, who were involved, influenced and were affected by implementation of a small-scale water resources project in Thailand; literature reviews; and personal experience.

4.1 Methodology approach

Linking a small-scale water resources project implemented by the department of water resources to stakeholder theory, it is possible that a normative and an instrumental approach can be taken. Referred to the normative bases of stakeholder claim by Reed (2002), the Department of Water Resources (DWR) takes a social responsibility to developing and sustaining individual and communal identity as well as securing material needs and perusing economic opportunities. It is also an instrumental perspective as the DWR must take key stakeholders into consideration in order to improve trust, lower transaction costs and therefore increase revenue as this leads to a success water resources project management.

4.2 Framework for stakeholder management

Stakeholder management in this paper can be carried out into three stages: (1) stakeholder identification (2) stakeholder analysis and (3) stakeholder implementation strategy development, which is depicted in Figure 4.1 (adapted from Karlsen, 2002).

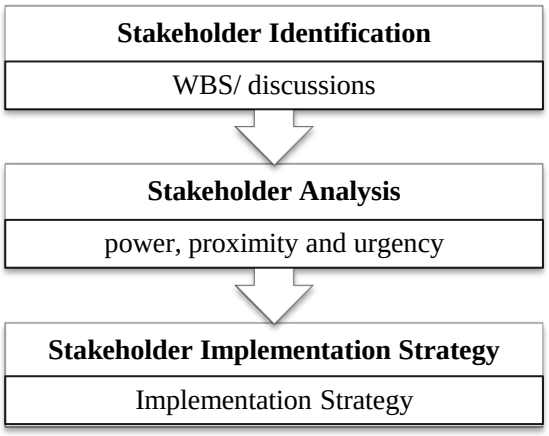

Figure 4.1 Research framework

4.2.1 Stakeholder identification

The first stage is to identify a project stakeholder. In this study, stakeholders were initially identified from the small-scale water resources project work breakdown structure. In an attempt to analyze stakeholder, stakeholder list from the WBS was discussed with key persons who related to a project. Some questions were used to define a list of stakeholders who have a stake in the use of the project and a role in the decision-making about how the project is used (Caribbean Natural Resource Institute, 2004). The following questions were discussed:

- Who uses the project?
- Who benefit from the use of the project?
- Who impact form the project whether positively or negatively?
- Who has rights and responsibilities over the use of the project?
- Who would be affected by change in the status, regime or outputs of project management?
- Who makes decisions that affect the use and status of project, and who is not?

By the end of exercise, stakeholders map can be developed. Non-human stakeholder is not explored in this study.

4.2.2 Stakeholder analysis

Once stakeholders have been identified, a stakeholder analysis exercise was conducted aiming to understand the complexity of stakeholder relations. Stakeholder analysis tool was employed to determine stakeholder relationship and their relative importance to the project, with importance determined in turn by a combination of three factors: power, proximity and urgency. The outcome of a stakeholder analysis was displayed in a visual format, e.g. a matrix or a set of diagrams (Bourne, 2009; Caribbean Natural Resource Institute, 2004).

4.2.3 Stakeholder implementation strategy

The final stage of stakeholder management is to develop a target implementation strategy which is essential for successful engagement of stakeholder to meet their expectations and for the benefits of a water resources project.

5. PRACTICAL STAKEHOLDER ANALYSIS FOR THAI WATER RESOURCES PROJECTS

5.1 Stakeholder identification

In small scale water resources project, groups and subgroups of stakeholder were identified- including government organizations at national and regional levels, international partners, politician, locals, traditional authority, de-concentrate government service, non-government organizations (NGOs), academic and research institutions, businesses and individuals who have interest in the water sector and media. As can be seen in Figure 5.1, a stakeholder map was produced as a result of initial water resources project stakeholder identification.

Due to literatures on stakeholder analysis, stakeholder classes can be divided into groups: direct and indirect, primary and secondary, internal and

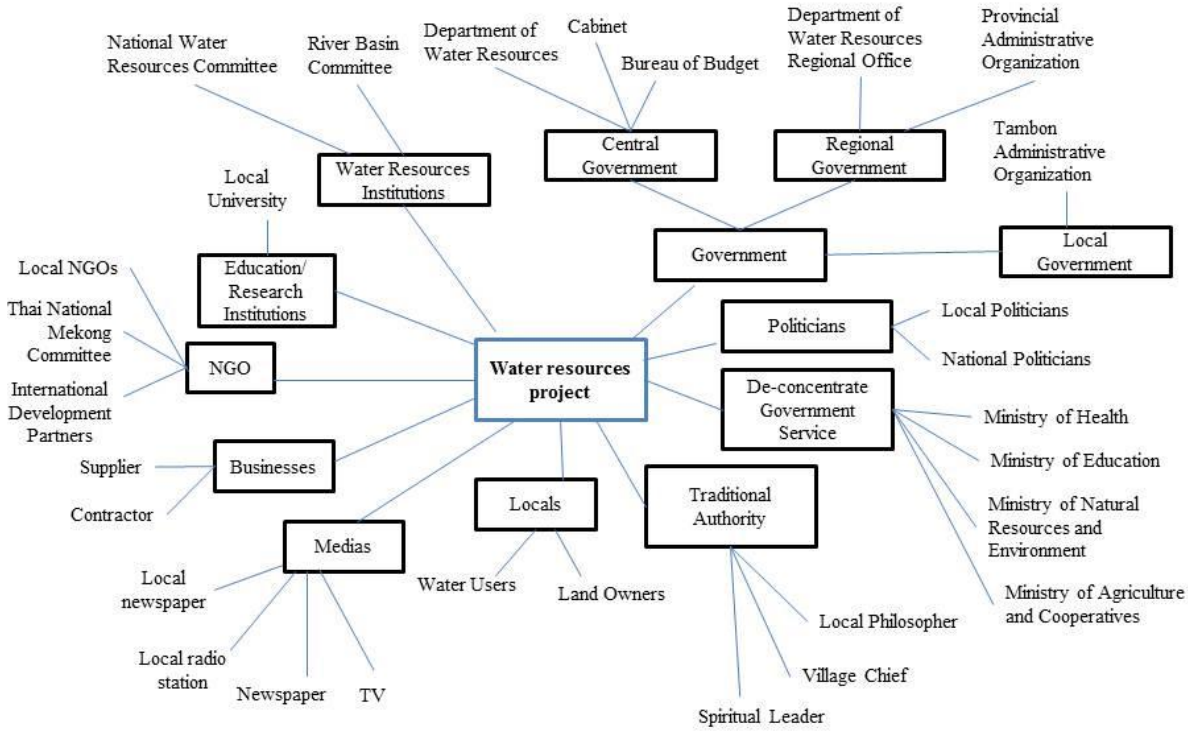

Figure 5.1 Water resources project stakeholder map

external (Brown, 2008; Bailur, 2007; Karlsen, 2002). It was cited in Karlsen (2002) that another alternative to assess stakeholders is to classify stakeholder along two dimensions- the potential to affect a project and the potential for collaboration with the project. Based on this assessment, four categories of stakeholders can be classified- supportive, marginal, non-supportive, and mixed blessing (Savage et al., 1991). The four categories of project stakeholders are shown in Figure 5.2. In this paper, stakeholders in small scale water resource project were classified into four categories as detailed in Figure 5.3.

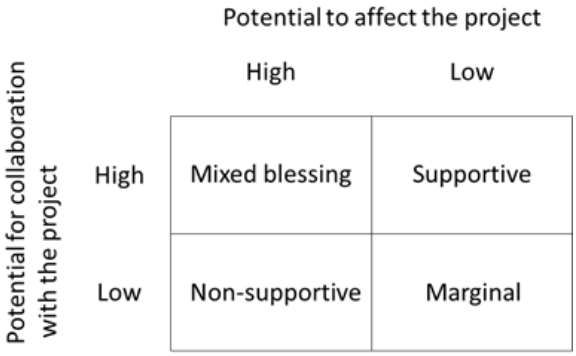

Figure 5.2 Project stakeholder categories

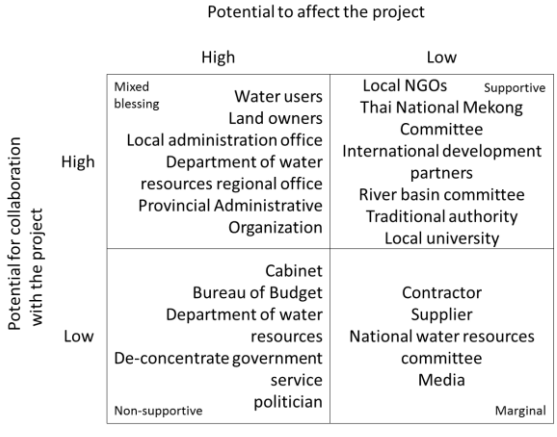

Figure 5.3 Water resources stakeholder matrix

5.2 Stakeholder relationship analysis

Stakeholder relationship diagram was produced as a result of the relationship between stakeholders looking at functions, forms, impacts and significant of relationships.

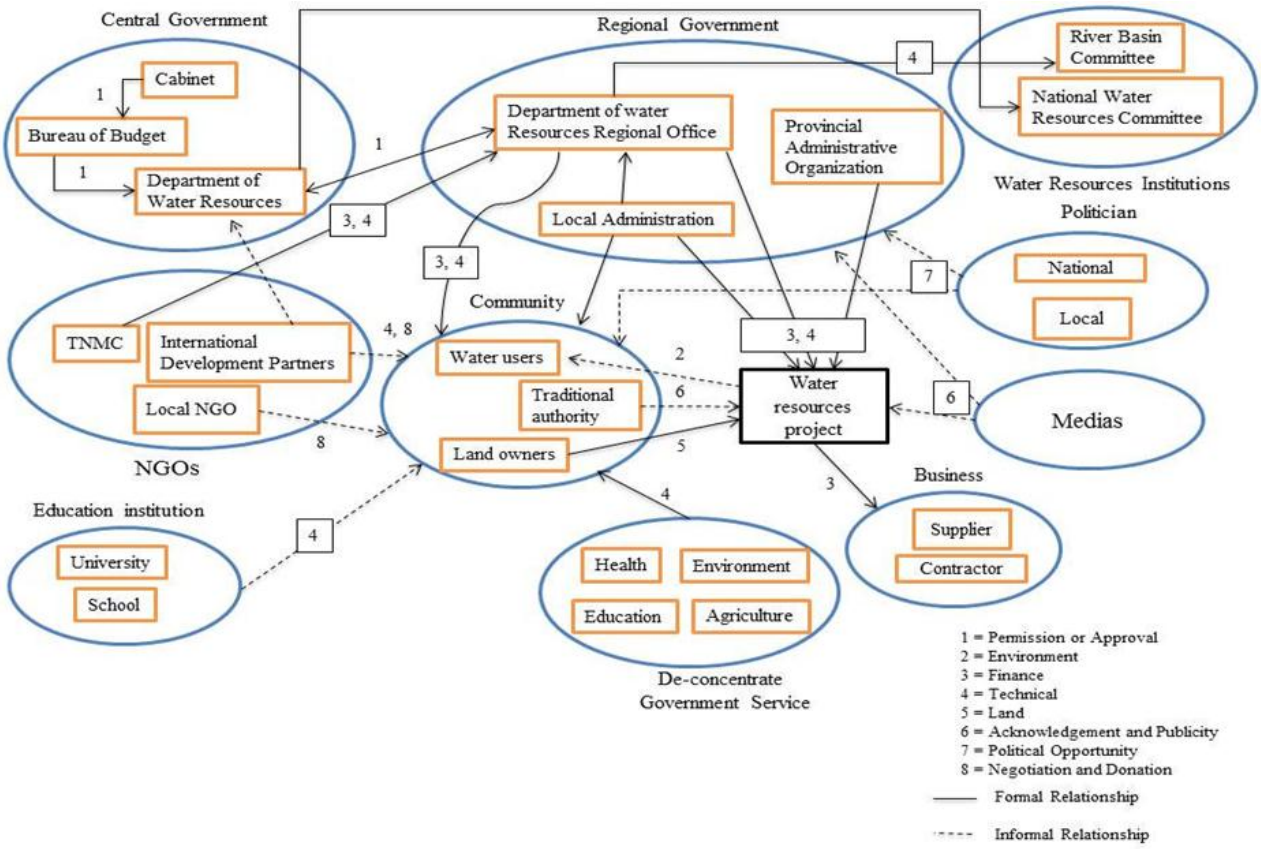

Figure 5.4 Stakeholder relation map

Figure 5.4 illustrates stakeholder groups and their relationship with others as well as to a water resources project. This result could be used to guide the design and implementation of communication activities in support of a water resources project management, for example, communication objectives, messages to be disseminated, media and messengers, and indicators by which the impacts of communication (Caribbean Natural Resource Institute, 2004).

5.3 Implementation Strategy Development

A stakeholder strategic plan was developed from the finding of a water resources project stakeholder analysis. The stakeholder strategic plan aims are to avoid project failure and to co-operate stakeholder's capabilities to contribute as effective as possible (SSWM, 2011). Based on the project stakeholder typology, four generic strategies for managing stakeholder are identified (Savage et. al., 1991);

5.3.1 Involve the supportive stakeholder

Cooperative potential of supportive stakeholders can be encouraged by involving them in relevant issues. A river basin plan approved by a river committee is partially implemented. Therefore, their potential cooperative may also be overlooked. In order to strengthen involvement of a river basin committee, its authorization on project decision-making should be increased by means of legal aspect. Traditional authorities- local philosopher, village chief, spiritual leader- should be informed and involved with a project.

5.3.2 Monitor the marginal stakeholder

These stakeholders are generally not concerned about most issues. However, the monitoring effort should be paid to certain issues, such as project safety and pollution, which could activate their threat or opposition from these stakeholders.

5.3.3 Defend against the non-supportive stakeholder

Non-supportive stakeholder is high on potential threat but low on potential cooperation. A defense strategy means to reduce the dependence that forms the stakeholder's interest in a project. Another proposal for non-supportive stakeholder is to find way to change the status of key stakeholder. In a defensive strategy, a challenge issue for a water resource project in Thailand is how to defend an excessive power of politicians over public project development.

5.3.4 Collaborate with mixed-blessing stakeholder

Mixed-blessing stakeholder is high on both the dimension of potential and the potential cooperation. Collaboration with this stakeholder group may be the best approach. The collaboration could be developed through mutual trust and communication and it must be beneficial for both parties (Karlsen, 2002).

6. STAKEHOLDER MANAGEMENT AND ETHICAL ISSUE

Being able to manage stakeholders' expectations and concerns is one of crucial success factors for water resources project and other public infrastructure project management. On the other hand, inadequate management of the stakeholders concerns could lead to conflicts and controversies of a project implementation. Originated from business aspect, public infrastructure project stakeholder management seems to focus on stakeholder identification development based on principle of "who and what really count". The framework for stakeholder identification were developed using qualitative criteria of power, legitimacy and urgency (Mitchell, et. al., 1997). Conventional stakeholder management framework has been complied of stakeholder identification, stakeholder legitimation and relation analysis, stakeholder expectations management and stakeholder engagement strategy monitoring (CRC, 2009). Public infrastructure project has tended to focus on planning and managing the multiple tasks required to deliver a project. However, the conventional framework regarding public infrastructure projects described here could be easily exercised by project promoters to dominate public projects, such as dam or nuclear power plant project, in order to deliver projects neglecting stakeholder needs and demands. In this section, an example case of stakeholder management related to ethics issue and an approach of co-creators will be discussed.

6.1 Ashio copper mine pollution case in Japan

The Ashio copper mine, Ashio, Tochigi prefecture, Japancopper mine from the end of the 19th century to the mid-20th century. The Ashio mine had been the property of the Tokugawa shokunate and became privately owned by Ichibei Furukawa in 1877. By the 1884, the Ahio mine became the highest copper production mine in Japan, producing 68 percent of the total output of the Furukawa mines and 26 percent of Japan's copper production. Due to the predominantly capitalistic production system of the Ashio copper mine, serious mining induced environmental destruction occurred. In August 1885, it was recognized that pollution from the mine had become widespread when massive fishes in the Watarase River were killed because of polluted water caused by the use of a rock-crushing machine and a steam-operate pump. In August 1890, agricultural system and villages in Tochigi and Gunma prefecture were heavily damaged from flood, which contained poison from the Ashio mine, occurred in the Watarase river basin. The destruction of agricultural ecosystem by the Ashio water-bone poisons provoked a response from the residents and farmers to stop mining operation. However, the Furukawa, owner of the Ashio mine, manipulated their power to

create strategy based on stakeholder management against the protesters. The Furukawa strategy is discussed as follow.

First, Furukawa had strong relationship with politicians, the government and academic institutions. Taking advantages of these connections, the political and economic role of Furukawa over the Japanese government were strengthened. In 1890, the result of soil analysis and other surveys related to the Ashio mine poisons were carried out by the professor of the Agriculture University, but it was confiscated immediately. In 1891, the government issued the newsletter which stated that the damage to the agricultural system in the areas around the Ashio mine were unknown and had been under investigation. In addition, the company offered the new pollution control equipment to protect the agricultural environment. These response from the government and the offer from the Ahio mine were used as a way to change the victims' attitude from "one of outright opposition to mining operations to one of accepting monetary reparations" (United Nation University, 2008).

Second, the negotiation between the farmers and the Furukawa concerning compensation for damaged condition adversely changed image of the farmers from the orientation toward stopping the mine operation to gaining monetary compensation from mine owner. The agreement to accept compensation gradually changed the farmers' movement against the operation of the copper mine into a movement to demand compensation for damage. As a result, the Japanese government and publics had negative attitude toward farmers' movement against the mine operation.

Third, the Furukawa agreed to pay the farmers monetary reparations for the damages and for remaining silence until the effectiveness of the new pollution control equipment had been evaluated. The amount of money as compensation for the extensive environmental damage was minimal. In addition, before singing of the compensation pact, the necessary preliminary damage surveys were completed by the investigation team designated and selected by the prefectural, village, and town legislative offices. This strategy was to assure that the Furukawa position was strengthened.

As a result of these, the entirely areas around the Ashio mine had been biologically destroyed by the close of 1884. The natural recovery was impossible, and the mine operation resulted in extensive erosion in the mountains and five feet of sediment in the middle of the Watarase River. In addition, the date-rate of newborn baby increased in relation to the poison areas (United Nation University, 2008).

6.2 Ethical issue and stakeholder management

Taking an example from the Ashio mine event, the Furukawa implemented the stakeholder management framework by identify the most key stakeholders (the Furukawa, politicians, farmers, landlords) through identification and analysis stakeholder legitimacy, power and emergency. The Furukawa implemented a perspective of instrumental approach which depicted that the organization should take key stakeholders into consideration as this leads to success and competitive. The Furukawa implemented their strategy by monetary compensation to persuade farmers cooperating with the mine. However, the ultimate principle behind this stakeholder management implementation was based on maximize the organization benefit with neglecting moral standards. Ethic is system of principles or beliefs concerned with what is morally right or wrong (Velasquez, 1992). The negative usage of stakeholder management can be avoided by

a more thoughtful understanding of ways in which stakeholders are to cooperate with other, leave each other free, and deal fairly with each other.

7. CO-CREATERS APPROACH

Two main approaches to manage stakeholder relationship are buffering and bridging. Buffering approach is an attempt to limit the effect and influence of stakeholders by establishing barriers between an organization and its stakeholder. Bridging approach, in contrast, pursues stakeholder partnership by establishing common ground and action (United Nation University, 2008). In order to establish common ground between stakeholders, it is important for stakeholders to stay close and learn to appreciate the legitimacy of each other viewpoints. This stakeholder relationship is considered as co-creators (Watanabe, 2009). By being close to each other and taking interest and concerns into account, it may be possible to inform project design with a variety ideas and perspectives. This approach may enhance the sense of ownership over the process and outcome rather than conventional stakeholder management approach.

8. CONCLUSION

Stakeholders in Thai water resources projects was identified and studied by stakeholder analysis using stakeholder management theory. The study was based on discussion with key persons who were involved with a small-scale water resources project in Thailand, literature reviews and personal experience. Various stakeholder relation maps were illustrated under their relationship, potential for collaboration and potential to affect a project, and stakeholder strategic plan for different stakeholder group was introduced. An example of the Ashio copper mine in Japan reflected the negative exercise of stakeholder management which was to maximize the company benefit rather than cooperate with other stakeholders for long term benefit. Co-creators approach was proposed for public project development in order to establish common ground to share stakeholder feeling.

Stakeholder identification and analysis provides important steps to assess the impact of management on people, institutions and resources in water resources planning process. The results are encouraging and should be validated in actual water resources project in Thailand. An important target for future studies is a stakeholder analysis method for identification of the risk impacting each stakeholder.

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